Claims

1. An apparatus for treatment of cerebral aneurysms and AVMs, comprising: a laser generating ultraviolet radiation; a steerable guide wire having an optical fiber inside it, said fiber extended from the proximal to the distal end of the guide wire and at the proximal end coupled to the laser; an over-the-wire catheter having an occlusive balloon and a micro tube adapted for delivery of saline distally to the balloon for displacing blood from the aneurysm or AVM and clearing the optical field in front of the distal end of the optical fiber.

2. The apparatus of claim 1, in which the laser generates UV radiation in the range of 240 to 280 nanometers, corresponding to maximum UV absorption in DNA.

3. The apparatus of claim 1, in which the distal end of the fiber is coupled to an optical tip adapted for scattering UV radiation in different directions for complete irradiation of the inner surface of the aneurysm.

4. An apparatus for treatment of aneurysms comprising: a laser generating ultraviolet radiation; a steerable guide wire; an over-the-wire catheter having at least one optical fiber inside its wall, the proximal end of said fiber coupled to the laser, the distal end extended to the distal end of the micro catheter, said micro catheter adapted for delivery of saline for displacing blood from the aneurysm or AVM and clearing the optical field in front of the distal end of the optical fiber.

5. The apparatus of claim 4, in which the laser generates UV radiation in the range of 240 to 280 nanometers, corresponding to maximum UV absorption in DNA.

6. The apparatus of claim 4, in which the distal ends of the fibers are coupled to optical tips adapted for scattering UV radiation in different directions for complete irradiation of the inner surface of the aneurysm.

7. A method of treatment of aneurysms comprising the steps: inserting a fiber optic guide wire into the artery feeding an aneurysm, the distal tip of the guide wire being placed inside the aneurysm; placing a catheter with an occlusive balloon and micro tube over the wire, the distal end of the tube just proximally to the optical tip of the guide wire; occluding the artery by the balloon; clearing the optical field inside the artery and the aneurysm by delivering steady flow of saline; activating a UV laser and delivering UV radiation on the whole inside surface of the aneurysm in quantity sufficient for killing 99.9% or more of the endothelial cells on the irradiated surface of the aneurysm.

8. A method of treatment of cerebral aneurysms and AVMs, comprising the steps: inserting a guide wire into the artery feeding an aneurysm or AVM, the distal tip of the guide wire being placed inside the aneurysm or AVM; placing a micro tube catheter over the wire, the distal end of the tube just proximally to the tip of the guide wire; clearing the optical field inside the artery and the aneurysm by delivering steady flow of saline; activating a UV laser and delivering UV radiation on the whole inside surface of the aneurysm in quantity sufficient for killing 99.9% or more of the endothelial cells on the irradiated surface of the aneurysm.

9. Apparatus for treatment of aneurysms comprising: an ultraviolet radiation generator; and a catheter including means for delivering the ultraviolet radiation to the aneurysm.

10. The apparatus of claim 9 wherein said catheter includes a passage and where said means for delivering comprises: a guide wire received within said passage and movable therein, said guide wire having an optical fiber inside it, said fiber extended from the proximal to the distal end of the guide wire and at the distal end coupled to said generator.

11. The apparatus of claim 10 wherein said catheter further includes an over-the-wire

catheter having an occlusive balloon and a micro tube adapted for delivery of an ultraviolet transparent wash fluid distally to the balloon for displacing blood from the aneurysm to clear the optical field in front of the distal end of the optical fiber.

12. The apparatus of claim 11 wherein said ultraviolet radiation generator generates UV radiation in the range of about 240 to about 280 nanometers.

13. The apparatus of claim 10 wherein said fiber includes a distal end and said fiber distal end is coupled to an optical tip adapted for scattering UV radiation in different directions for complete irradiation of the inner surface of the aneurysm.

14. The apparatus of claim 10 wherein said guide wire is steerable.

15. The apparatus of claim 9 wherein said ultraviolet radiation generator is a laser.

16. The apparatus of claim 9 wherein said catheter includes a wall and a passage and a guide wire received within said passage and movable therein and wherein said means for delivering comprises at least one optical fiber, said at least one optical fiber disposed in said catheter wall.

17. The apparatus of claim 16 wherein said generator generates UV radiation in the range of about 240 to about 280 nanometers.

18. The apparatus of claim 17, wherein said at least one optical fiber has a distal end and wherein said apparatus further comprises an optical tip adapted for scattering UV radiation in different directions for complete irradiation of the inner surface of the aneurysm.

19. A method of treatment of an aneurysm, comprising the steps: inserting a fiber optic

guide wire having an optical tip into the artery feeding the aneurysm, the distal tip of the guide wire being placed inside the aneurysm; and clearing the optical field inside the artery and the aneurysm by delivering a wash fluid transparent to UV radiation to displace the blood. activating a UV laser and delivering UV radiation on the whole inside surface of the aneurysm in quantity sufficient for killing 99.9% or more of the endothelial cells on the irradiated surface of the aneurysm.

20. The method of claim 19 and further comprising: placing a catheter with an occlusive balloon just proximally to the optical tip of the guide wire; and occluding the artery by the balloon.

21. The method of claim 19 wherein the wash fluid is saline.